R18 Regulation *Subject code:2E6DE*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech VI Semester Supplementary Examinations, July 2024

IMAGE PROCESSING AND PATTERN RECOGNITION

(ECE)

Maximum Marks: 70 Date:26.07.2024 Duration: 3 hours

Note: 1.This question paper contains two parts A and B.
2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit which carries 10M.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

	Part-A		
All the following questions carry equal marks (10X2M=20 Marks)		CO	Bloom Tx
1	List the principal application areas of digital image processing?	1	L1
2	What is image smoothing and sharpening?	1	L1
3	Specify the purpose of closing operation.	2	L1
4	List the conditions required to be met for edge linking using local processing	2	L1
5	Explain what is digital watermarking also list the areas of applications.	3	L1
6	Outline the characteristics of Lossless Compression	3	L1
7	Define Topology.	4	L1
8	Discuss Fourier descriptors.	4	L1
9	Define Pattern Recognition.	5	L1
10	Explain Bayes decision rule	5	L1
	Part-B		
Answer All the following questions. (5X10M=50Marks)			
11	With a neat block diagram, explain the fundamental steps in digital image processing. [10M]	1	L2
	OR		
12	Explain the model of Image Degradation process. [10M]	1	L2
13	Explain in detail about any two morphological algorithms. [10M]	2	L2
	OR		
14	Explain in brief about Region based segmentation. [10M]	2	L2
15	Explain the significance of lossless predictive coding model using DPCM without quantizer. [10M]	3	L2
	OR		
16	Explain in detail about a. Statistical Compression Techniques. [5M] b. Transform based compression. [5M]	3	L2

17	Explain the two techniques of region representation. a. Chain codes [4M] b. Polygonal approximation. [6M]	4	L2
	OR		
18	Specify the types of regional descriptors. a. Simple descriptors [6M] b. Texture [4M]	4	L2
19	Enumerate the Fundamental problems in Pattern Recognition system. [10M]	5	L2
	OR		
20	Explain in detail about K-means clustering algorithm. Illustrate with an example. [10M]	5	L2